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## No. XVII.

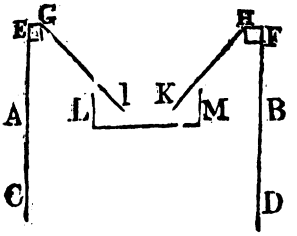
*Deſcription of a Stopper for the Openings by which the Sewers of Cities receive the Water of their Drains. By Mr.* JOHN FRASER, *of Chelſea, London.*

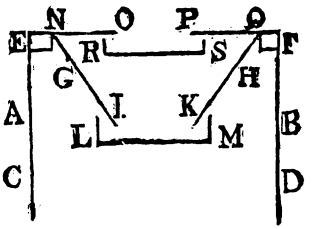
Read, Sept. 19, 1800. THE parts of this ſtopper reſemble ſo much the hopper and ſhoe of a griſt-mill, that they may be called by thoſe names. The opening by which the water from the drains paſſes down into the common ſewer, is generally ſecured at its orifice by a curb or frame of wood, and by an iron grating which prevents large bodies from falling in. Let the iron grating open on a hinge, then ſet into the curb a hopper of wood, ſheet or caſt-iron, ſo cloſely fitted at its top to the curb as to prevent the paſſage of air between them. Under this hopper ſuſpend a ſhoe or box, cloſe except at top, within which the lower opening of the hopper may empty itſelf, and the water flow off over the brim of the ſhoe, into the ſewer. When the water ceaſes to flow, the ſhoe remaining full, keeps the lower opening of the hopper cloſed, ſo that no air can paſs up through it. The iron grating is ſhut down on the hopper to keep bodies from falling into it.

In Charleſton and Savannah, where the ſtreets are not paved, and are very ſandy, ſuch quantities of ſand are carried by currents of air down through the drain holes into the ſewer, as to choke that entirely. To prevent this, lay a lid on the hopper, fitted to it, and having an aperture in its centre of half its own diameter. Under this aperture, and very near to it, and conſequently within the hopper, ſuſpend a pan or other veſſel ſomewhat larger than the aperture, but leſs than the lid itſelf. The

ſand

ſand conveyed by the wind will fall through the aperture of the lid into the pan, and will ſoon fill it and cloſe the aperture, ſo that all the ſand which follows will blow over and paſs off. When it becomes neceſſary that the aperture ſhould be re-opened to let the water of the drains paſs through, that water will itſelf very quickly work its own way through the ſand in the pan, waſh it over the brim, and down through the hopper and ſhoe into the ſewer, and reſtore the water paſſage; and thus the wind and water will alternately perform the functions of cloſing the paſſage againſt ſand, or opening it for water as ſhall be neceſſary.




In the two ſections here repreſented
A B C D is the opening of the ſewer into the ſtreet.
E F the curb at its orifice.
G H I K the hopper.
L M the ſhoe.

In the ſecond figure N O P Q is the ſand-lid of the orifice, and O P the aperture in that lid. R S the pan ſuſpended under it.